

## Sexually Transmitted Infections

### Urethritis

#### Organisms

##### **Gonococcus**

##### **Chlamydia**

Mycoplasma genitalium\*

Trichomonas vaginalis

Adenovirus

Herpes simplex virus

\* not routinely tested for in UK (is done in Australia and Netherlands)

Urethral smear – gram staining (gram-negative diplococci = gonococcus)

Dipstick testing for leucocytes a/w high NPV and low PPV

First voided urine (FVU) for NAAT (nucleic acid amplification testing) for chlamydia

FVU for gram-stain and culture +/- NAAT for gonococcus

FVU should be after urine holding for at least 2 hours

Management based on organism:

##### Chlamydia

Azithromycin 1g PO stat dose

Doxycycline 100mg PO bd for 7-14 days

Alternatively:

Erythromycin 500mg PO qds for 14 days

Ofloxacin 200mg PO bd for 7 days

##### Gonococcus

Cefixime 400mg PO stat dose

Previously quinolones but high rates of resistance

Current recommendation to cover both organisms – give azithromycin and cefixime as above stat and observe that medication taken. Alternatively 1.5g azithromycin to cover both organisms (however more poorly tolerated and relapse rates higher than combination of meds)

EAU guidelines (2009)

The following guidelines for therapy comply with the recommendations of the Center for Disease Control and Prevention (9-11). The following antimicrobials can be recommended for the treatment of gonorrhoea:

- Cefixime, 400 mg orally as a single dose
- Ceftriaxone, 125 mg intramuscularly (with local anaesthetic) as a single dose
- Ciprofloxacin, 500 mg orally as single dose
- Ofloxacin, 400 mg orally as single dose
- Levofloxacin, 250 mg orally as single dose.

Please note that fluoroquinolones, such as ciprofloxacin, levofloxacin, and ofloxacin, are contraindicated in adolescents (<18 years) and pregnant women.

As gonorrhoeae is frequently accompanied by chlamydial infection, an antichlamydial active therapy should be added. The following treatments have been successfully applied in *C. trachomatis* infections.

As first choice of treatment:

- Azithromycin, 1 g orally as single dose
- Doxycycline, 100 mg orally twice daily for 7 days.

As second choice of treatment:

- Erythromycin base, 500 mg orally four times daily for 7 days
- Erythromycin ethylsuccinate, 800 mg orally four times daily for 7 days
- Ofloxacin, 300 mg orally twice daily for 7 days
- Levofloxacin, 500 mg orally once daily for 7 days.



**Genital ulceration**

| <b>Disease</b>   | <b>Lesions</b>   | <b>Lymphadenopathy</b>                                       | <b>Systemic Symptoms</b>           |
|------------------|--|--|------------------------------------|
| Primary syphilis | Painless, indurated, with a clean base, usually singular                   | Nontender, rubbery, nonsuppurative bilateral lymphadenopathy | None                               |
| Genital herpes   | Painful vesicles, shallow, usually multiple                                | Tender, bilateral inguinal adenopathy                        | Present during primary infection   |
| Chancroid        | Tender papule, then painful, undermined purulent ulcer, single or multiple | Tender, regional, painful, suppurative nodes                 | None                               |
| Lymphogranuloma  | Small, painless vesicle or papule progresses to an ulcer                   | Painful, matted, large nodes develop, with fistula tracts    | Present after genital lesion heals |

**Herpes simplex**

HSV-type 2 in ~90% cases; HSV type 1 in 10%

Incubation period up to 4 weeks

Asymptomatic viral shedding for up to 3 months

HSV-2 a/w higher recurrence rate

Diagnosis clinical and fluid for viral culture or NAAT

Topical Rx ineffective

Oral acyclovir 400mg tds for 10 days (primary infection) and 5 days for recurrences

**Chancroid**

*Haemophilus ducreyi*

Incubation period up to 3 weeks

Tender papule which breaks down

Suppurative inguinal nodes

Difficult to culture – NAAT better

Azithromycin 1g orally single dose or cipro for 3 days

**Syphilis**

*Treponema pallidum*

Incubation period 10-90 days

Primary

Single painless ulcer at 3 weeks and lasts 4-6 weeks. Bilateral rubbery nodes. No systemic features

May result in latent or secondary disease

Secondary

10 weeks to 2 yrs after primary syphilis

Maculopapular rash with condylomata in skin creases

Tertiary

One third of untreated cases. Systemic disease characterised by gummas

Diagnosis

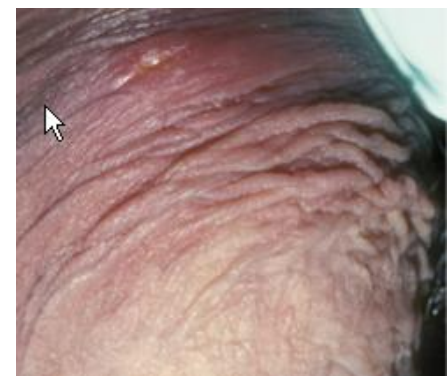
Fluid from primary and secondary lesions

Dark field microscopy

Direct fluorescent antibody testing

Serology

VDRL (non-specific antibody testing)



**Sensitivity**

86% for primary syphilis  
 100% secondary syphilis  
 95% tertiary syphilis

False positive rate ~1-2%. Therefore confirm with treponemal antibody tests

If positive must confirm with T pallidum specific tests (TP-particle agglutination test or TP antibody testing)

NB. T pallidum antibody testing remain positive for life. VDRL correlates with disease activity and becomes negative after ~ one year

**Treatment****Primary and secondary syphilis**

Benzypenicillin G 2.4MU intramuscularly single dose  
 (a/w systemic Jarisch-Herxheimer reaction for 24 hours after administration – normal & responds to fluids and NSAIDs)  
 Alternatively doxycycline 100mg bd for 14 days

**Tertiary syphilis**

Procaine penicillin G 2.4MU im od and probenecid orally 500mg qds for 10-14 days

**Lymphogranuloma venereum**

Chlamydia trachomatis subtypes L1, L2, L3

Incubation period 3-30 days

Painless ulcer with painful matted suppurative lymphadenopathy

3 weeks with doxycycline 100mg po bd or erythromycin 500mg qds

**Female vaginal discharge**

|                              | <b>Vaginal Discharge</b>                       | <b>pH</b> | <b>WBC</b> | <b>Microscopy</b>   | <b>Symptoms</b>  |
|------------------------------|--|-----------|------------|---|--|
| <i>Normal</i>                | White, thick, smooth                           | ≤ 4.5     | Absent     | Lactobacilli  | None   |
| <i>Candidiasis</i>           | White, thick, curdy                            | ≤ 4.5     | Absent     | Mycelia   | Vulvar pruritus, external or superficial dysuria                 |
| <i>Trichomoniasis</i>        | Frothy or purulent                             | ≥ 4.5     | Present    | Mobile trichomonads present   | Vulvar erythema and edema, punctate strawberry lesions on cervix |
|                              |  |           |            | Amine odor  |  |
| <i>Neisseria gonorrhoeae</i> | None or mucopurulent discharge from cervicitis | ≥ 4.5     | Present    | Gram-negative diplococci within or adjacent to polymorphonuclear leukocytes on Gram stain | Vaginal and pelvic discomfort, dysuria, most often asymptomatic  |
| <i>Chlamydia trachomatis</i> | None or mucopurulent discharge from cervicitis | ≥ 4.5     | Present    | Organisms not visualized  | Vaginal and pelvic discomfort, dysuria, most often asymptomatic  |
| <i>Bacterial Vaginosis</i>   | Thin, white homogeneous                        | ≥ 4.5     | Absent     | Paucity of lactobacilli (75% of patients)   | Fishy odor and increased vaginal discharge                       |
|                              |  |           |            | Amine odor  |  |
|                              |  |           |            | Clue cells  |  |

**Trichomonas vaginalis**

50% asymptomatic

Green foul smelling vaginal discharge with irritation, dyspareunia and strawberry cervix/vagina

Motile protozoa identifiable on wet mount preparations

Alternatively culture, immunoassay or NAATs

Rx = single dose metronidazole 2g; repeat testing highly recommended. 500mg bd 7 days for non-responders

NB. BV not a sexually transmitted infection. Caused by *Bacteriodes* spp. Rx with metronidazole

**Urological manifestations of HIV/AIDS**

Life expectancy in African countries with high population prevalence has fallen due to HIV/AIDS. Some estimate a decrease as much as 15 years by 2000

Incidence in USA has reached plateau ~40,000 new infections/yr in US

Without treatment:

HIV infection                      median life expectancy 8 -12 years

AIDS                                      median life expectancy 2 – 3 years

Death rates in developed countries falling rapidly due to highly-active antiretroviral combination therapy (HAART)

Despite HAART HIV cannot currently be eradicated (areas of poor drug penetration allow reservoirs of evasion)

Diagnosis of HIV

HIV RNA detectable from day 12                      Sensitivity 100%; specificity 97%

HIV antibody testing (ELISA, W Blot)                      100% patients positive at 6 weeks

Staging of disease

Stage 1                      Asymptomatic HIV infection  
                                    Persistent generalised lymphadenopathy

Stage 2                      Weight loss > 10%  
                                    Skin infections or URTI

Stage 3/4                      See appendix for index conditions

Monitoring disease

Plasma HIV RNA levels correlate with clinical stage

                                    Rapid fall with HAART a/w good prognosis; rising levels indicate treatment relapse

CD4 count

**Urological considerations**

(i)                      STIs - especially HSV - common underlying presentation of HIV

(ii)                      Urolithiasis

                                    Typically calcium stones

                                    Occasionally 2' protease inhibitors – most common indinavir

                                    Indinavir stones form at pH 7 and dissolve at pH 4

                                    Not seen on plain KUB or CT

                                    Conservative therapy initially recommended

                                    Failed conservative Mx mandates ureteroscopy

(iii)                      HIVAN

                                    HIV associated nephropathy

                                    Glomerular disease with proteinuria and renal impairment

                                    Blacks >> whites (12:1)

                                    Third commonest cause of ESRF in blacks in certain parts of US

                                    Bx – focal segmental glomerulosclerosis

                                    Rx – HAART +/- dialysis

(iv)                      Neoplasms

                                    Kaposi's sarcoma (HHSV 8)

                                    Non-Hodgkin's lymphoma (EBV)

                                    SCC cervix, anus, penis (HPV mediated)

                                    Testicular tumours more common (lymphoma)

## Appendix

TABLE 1. REVISED WHO CLINICAL STAGING OF HIV/AIDS FOR ADULTS AND ADOLESCENTS

|  |
|--|
| <b>Primary HIV Infection</b>   |
| Asymptomatic   |
| Acute retroviral syndrome  |
| <b>Clinical stage 1</b>  |
| Asymptomatic   |
| Persistent generalized lymphadenopathy (PGL)   |
| <b>Clinical stage 2</b>  |
| Moderate unexplained weight loss (<10% of presumed or measured body weight)  |
| Recurrent respiratory tract infections (RTIs, sinusitis, bronchitis, otitis media, pharyngitis)  |
| Herpes zoster  |
| Angular cheilitis  |
| Recurrent oral ulcerations   |
| Papular pruritic eruptions   |
| Seborrhoeic dermatitis   |
| Fungal nail infections of fingers  |
| <b>Clinical stage 3</b>  |
| <b><i>Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations</i></b>                           |
| Severe weight loss (>10% of presumed or measured body weight)  |
| Unexplained chronic diarrhoea for longer than one month  |
| Unexplained persistent fever (intermittent or constant for longer than one month)  |
| Oral candidiasis   |
| Oral hairy leukoplakia   |
| Pulmonary tuberculosis (TB) diagnosed in last two years  |
| Severe presumed bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)                        |
| Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis   |
| <b><i>Conditions where confirmatory diagnostic testing is necessary</i></b>  |
| Unexplained anaemia (<8 g/dl), and or neutropenia (<500/mm <sup>3</sup> ) and or thrombocytopenia (<50 000/mm <sup>3</sup> ) for more than one month |
| <b>Clinical stage 4</b>  |
| <b><i>Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations</i></b>                           |
| HIV wasting syndrome   |
| Pneumocystis pneumonia   |
| Recurrent severe or radiological bacterial pneumonia   |
| Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration)   |
| Oesophageal candidiasis  |
| Extrapulmonary TB  |
| Kaposi's sarcoma   |
| Central nervous system (CNS) toxoplasmosis   |
| HIV encephalopathy   |
| <b><i>Conditions where confirmatory diagnostic testing is necessary:</i></b>   |
| Extrapulmonary cryptococcosis including meningitis   |
| Disseminated non-tuberculous mycobacteria infection  |
| Progressive multifocal leukoencephalopathy (PML)   |
| Candida of trachea, bronchi or lungs   |
| Cryptosporidiosis  |
| Isosporiasis   |
| Visceral herpes simplex infection  |
| Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)   |
| Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis, penicilliosis)   |
| Recurrent non-typhoidal salmonella septicaemia   |
| Lymphoma (cerebral or B cell non-Hodgkin)  |
| Invasive cervical carcinoma  |
| Visceral leishmaniasis   |